July 21, 2006

EX PARTE: ELECTRONIC SUBMISSION

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

RE: In the Matter of the Review of the Emergency Alert System (EB 04-296);

Dear Ms. Dortch:

On July 12th, 2006, Jon Metzler of Rosum Corporation, and James Green of Mercury Strategies, LLC, met with Tim Peterson and Mika Savir of the Office of the Managing Director, and Walter Johnston of the Office of Engineering and Technology, on the subject of EB 04-296, In the Matter of the Review of the Emergency Alert System. The purpose of the meeting was to discuss potential upgrades to the broadcast television infrastructure that could enhance its ability to support homeland security applications.

Thank you for your attention. Should you have any questions, please do not hesitate to contact me. Materials left with the Commission are appended to this filing.

Sincerely yours,

Jon Metzler
Business Development Director
Rosum Corporation

Cc: Tim Peterson
Mika Savir
Walter Johnston
James Green
Skip Speaks

Transforming the EAS into a Ground-based “GPS”

Rosum Corporation

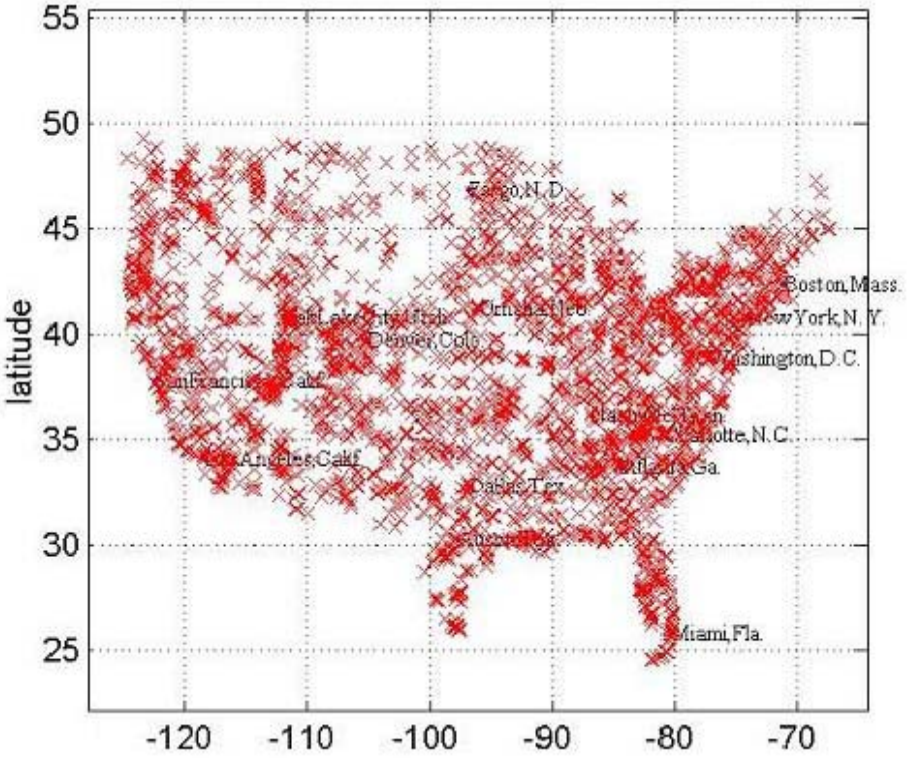
July 2006

Overview: TV and Homeland Security

- Broadcast TV transmitters are distributed nationwide, robust to disaster, and highly correlated with population centers
- Broadcast TV is used now for Emergency Alert System, with >95% population reach
- With Rosum technology, TV is now usable for Positioning and Navigation indoors where GPS fails or during GPS outages; synchronizing TV clocks creates a full GPS functional equivalent on the ground, usable in peacetime and emergencies
- This enables situational awareness of key assets where it has never been possible before, even when conventional wireline and wireless infrastructures are impaired

Broadcast TV is distributed, robust, and correlated with population density

TV signals are usable for positioning at a range of 50-100km from the transmitter



CONUS TV transmitter infrastructure

TV transmitters of the Northeast Seaboard

TV Infrastructure is Robust to Disaster

- Backup diesel power of 1 week typical, must-have in Top 100 markets
  - Backup power available at studio and transmitter
  - Backup transmitter antennae often situated on same hill

- National Association of Broadcasters received commendation from President Bush due to heroic performance after Gulf State hurricanes – TV stayed on even when wireline and wireless infrastructures were impaired

  - Using TV for Positioning and Navigation of public safety assets is a natural extension of this pre-built, robust infrastructure, and a natural extension of the EAS

Actions Are Underway to Enhance TV's Emergency Capabilities

- FCC formed Media Security & Reliability Council post-9/11 to create emergency protocols for TV & FM stations
- FCC issued EAS docket in 2004; this examination received heightened attention after Gulf State hurricanes of 2005
- FEMA conducted Digital Emergency Alert System trial with APTS and SpectraRep in VA in 2004-2005
- Advanced Television Standards Committee (ATSC) is now examining standards (Common Alert Protocol) to enhance EAS capabilities of Digital TV
- Executive Order of June 2006 specified DHS establish a Public Alert and Warning System in collaboration with FCC, and DoC and DoD

Upgrading the EAS into a Full GPS Equivalent

- A proposed ATSC standard (A-VSB) would stabilize frequency and symbol rate through use of a 1 PPS / 10 MHz clock source (i.e., GPS)

- A related SFN standard also proposes stabilization of emissions

- Rosum proposes stabilization (synchronization desired) of all emissions (SFNs and MFNs)
  - SFN broadcasters require the ability to offset emissions to optimize coverage

- Functional benefits of synchronization include
  - Autonomous (device-based) location capability
  - Reduced receiver cost/power
  - Improved receiver reliability
  - Faster signal acquisition
  - Faster time-to-fix

Homeland Security Applications of TV-positioning

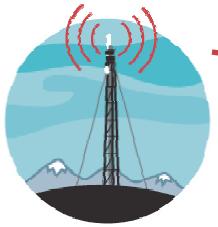
- First responder situational awareness: real-time location indoors and out
- Asset tracking: hazmat, cargo; vehicles
- People tracking: offenders under supervision, patient triage
- Location-aware Emergency Alerts over TV (Reverse 9-1-1 alerts, geotagged Amber Alerts)
- E9-1-1 compliance for telecommunications providers

Benefits to Broadcasters

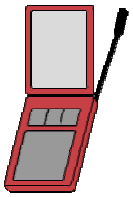
- Aligns well with public service component of broadcast spectrum license
- Value-added use of spectrum at a time when alternative uses of spectrum are desired
- Potential added revenue source through funding or service revenues, such as commercial location-based services
- Broadcast TV in the future will focus on mobile users with mobile receivers such as laptops, to whom location information can be highly valuable in providing differentiated service, such as locally determined content or advertisements
- Highly inexpensive upgrade, easy to implement

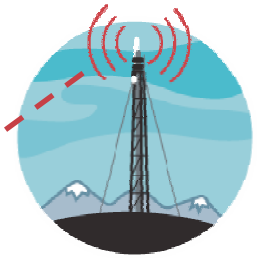
How TV-based Positioning Works Today

1) 4500 CONUS analog and digital channels are already built and operational. Broadcasts contain synchronization pulses usable to measure timing.



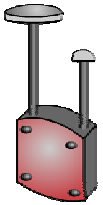
2) Rosum-enabled device receives TV signals and measures their timing. Picture is not demodulated.





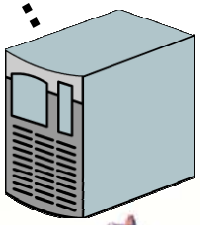
3) Device passes information to Location Server

6) Results sent back to device or to remote tracking application



Regional Monitor Unit covers 50-100km radius; sees same signals as mobile device

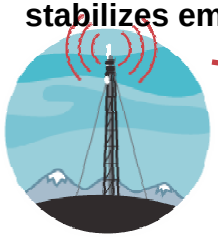
4) Aiding data for position calculation

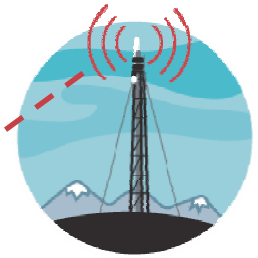


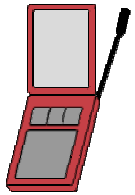
5) Location Server computes position

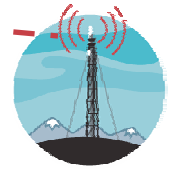
Synchronizing Channel Clocks: CONOPS

1) GPS or equivalent provides transmitter time and frequency reference, and stabilizes emissions







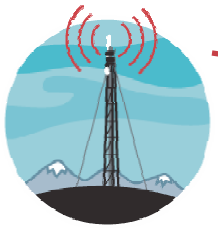


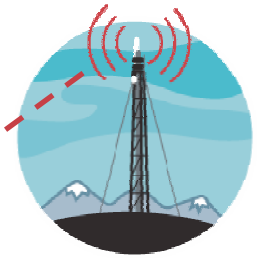
2) The mobile device positions itself autonomously using stabilized TV signals

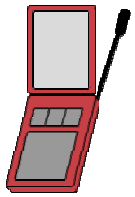
3) Situational awareness information is viewable back at command center

Location-Aware Emergency Alerts

1) TV channels are used to send Emergency Alerts with location-specific instructions







2) The location-aware radio receives the alert and either reacts or ignores it, enabling more efficient resource dispatch and reducing "blind" situations

3) Situational awareness information is viewable back at command center

Command Center